

REMARKS

The Examiner rejected Claims 1-23 and 28 under 35 U.S.C. § 103(a) as being unpatentable over Stewart. Such rejections are noted.

Claims 1, 2, 3, 14 and 15 have been cancelled, without prejudice, Claims 3 and 14 are formerly dependent claims that have been re-presented as new claims 29 and 30, respectively. Claims 4, 12, 13, and 16 have been amended to refer to the re-presented claims. Applicant respectfully submits that Claims 4-13, 16-23, and 28-30 are allowable.

Filed herewith is a 37 C.F.R. § 1.132 Declaration of James Rochelle, an expert in the field of proximity monitoring and wireless containment systems. The Declaration sets forth facts establishing the state of the proximity monitoring and wireless containment systems art at the time of filing of the Application.

Obviousness Under 35 U.S.C. § 103

The Examiner rejected Claims 1-23 and 28 under 35 U.S.C. § 103(a) as being unpatentable over Patent Number 6,392,547, issued to Stewart. A rejection under 35 U.S.C. § 103(a) must be supported by a *prima facie* case of obviousness. MPEP § 2142. "The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness." MPEP § 2142, pg. 2100-121.

The first element in establishing a *prima facie* case of obviousness is that "there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings." MPEP § 2143. The second element is that there must be a reasonable expectation of success. *Id.* The third element is that "the prior art reference (or references when combined) must teach or suggest all the claim limitations." *Id.* "There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art." *In re Rouffet*, 149 F.3d 1350, 1357, 47 U.S.P.Q.2d 1453, 1457-58 (Fed. Cir. 1998) (The combination of the references taught every element of the claimed invention, however without a

motivation to combine, a rejection based on a *prima facie* case of obvious was held improper); see MPEP § 2143.01.

The relevant facts for finding obviousness relate to (1) the scope and content of the prior art, (2) the level of ordinary skill in the field of the invention, (3) the differences between the claimed invention and the prior art, and (4) any objective evidence of nonobviousness such as long felt need, commercial success, the failure of others, or copying. *Graham v. John Deere Co.*, 148 U.S.P.Q. 459, 467 (U.S. 1966). The obviousness analysis articulated by the United States Supreme Court in *Graham* requires that “the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved.” *Id.* With respect to the fourth factor, the Supreme Court allowed that “[s]uch secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy.” *Id.*

Initially, Applicants reiterate their argument that the Examiner has made conclusory assertions and taken official notice of obviousness without providing support or explanation. Also, Applicants respectfully point out that the test for obviousness applies to “one of ordinary skill in the art,” and not a “skilled artisan.” In the Final Office Action the Examiner states:

Regarding Claims 4-6, 12-14, it would have been obvious to the skilled artisan to employ three transmitting antennas and/or two receiver antennas, and notice of such use is hereby taken. As to Claims 7 and 28, the line frequency multiple defining the carrier frequency is an obvious method used in transmitters. As to Claims 8, 15-23, the oscillator and PLL and amplifiers, etc., are all obvious transmitter components in the Stewart et al system, and would therefore be obvious to employ therein, by the skilled artisan. As to Claims 9-11, the particular modulation technique is also obvious to the skilled artisan.

Application No. 09/779/076, Paper 13, page 3 (emphasis added). Section 2144.03 of the Manual of Patent Examining Procedure states:

The rationale supporting an obviousness rejection may be based on common knowledge in the art or “well-known” prior art. The examiner may take official notice of facts outside the records which are capable of

instant and unquestionable demonstration as being "well-known" in the art.

MPEP § 2144.03 (emphasis added). Applicants again request the Examiner provide evidence to support his assertion of obviousness as it is respectfully submitted that the cited references do not support such a conclusion. See MPEP 2144.03, pg. 2100-129, 8th ed.

Claim 3 (Re-presented as Claim 29)

With respect to Claim 3, the Examiner has not provided an explanation as to why the limitations of Claim 3 are obvious in view of Stewart. However, with respect to Claims 4 and 5, which depend from Claim 3, the Examiner states, "Regarding Claims 4-6, 12-14, it would have been obvious to the skilled artisan to employ three transmitting antennas and/or two receiver antennas, and notice of such use is hereby taken."

Applicants have re-presented Claim 3 in independent form as Claim 29 by including the limitations of Claim 1, from which Claim 3 originally depended. Claim 29 adds the limitation of Claim 3 to those of Claim 1 that "said transmitter at least one antenna array includes a first transmitter antenna representing a first coordinate axis, a second transmitter antenna representing a second coordinate axis, and a third transmitter antenna representing a third coordinate axis." Stewart does not teach or disclose the use of three transmitting antennas.

Filed herewith is a 37 C.F.R. § 1.132 Declaration of James Rochelle, an expert in the field of proximity monitoring and wireless containment systems. The facts set forth in the declaration establish the following:

1. Stewart does not teach, disclose, or hint at the use of three transmitting antennas.
2. Stewart teaches a rotating magnetic field, which is not the same as an ordinary magnetic field having no circular rotation.
3. Three transmitting antennas provides a three-dimensional perimeter and such a three-dimensional perimeter is not discussed in Stewart.

4. Three transmitting antennas solves the problem associated with uneven terrain, and such a problem is not discussed in Stewart.

5. Good engineering practices dictate that component counts be minimized while still meeting performance specifications. Such good engineering practices dictate that a third transmitting antenna only be used if necessary to satisfy performance specifications. Stewart does not identify any performance specifications for the base station **21** that require a third transmitting antenna.

Accordingly, connecting three antennas to a transmitter was not obvious to one skilled in the art at the time of filing of the Application. However, by his statement that "notice of such use is hereby taken," the Examiner is taking official notice as described under MPEP 2144.03. However, contrary to the MPEP, the Examiner has not cited a prior art reference in support of his assertion. MPEP 2144.03, pg. 2100-132 ("It would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known. . . . It is never appropriate to rely solely on "common knowledge " in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based.")

Applicants respectfully submit that Claim 29 is not obvious in view of Stewart because, first, there is no suggestion or motivation to modify the device of Stewart as suggested by the Examiner, which is the first requirement of a *prima facie* case of obviousness; second, Stewart does not disclose all the limitations of Claim 29, which is the third requirement of a *prima facie* case of obviousness; third, Applicants have submitted evidence refuting the Examiner's claims of obviousness; and fourth, the Examiner has not met his burden of supporting his official notice of obviousness as described by MPEP 2144.03. Accordingly, Applicants respectfully submit that Claim 29 is allowable.

Claim 4

With respect to Claim 4, the Examiner states, "Regarding Claims 4-6, 12-14, it would have been obvious to the skilled artisan to employ three transmitting antennas and/or two receiver antennas, and notice of such use is hereby taken." The Examiner has not addressed the specific limitations included in Claim 4, namely, "said magnetic

field is a composite magnetic field summing a first magnetic field component from said first transmitter antenna, a second magnetic field component from said second transmitter antenna, and a third magnetic field component from said third transmitter antenna."

Not only does Stewart not teach or disclose three transmitting antennas, Stewart does not teach or disclose a composite magnetic field or summing three magnetic field components. Neither does the Examiner make any statement regarding the specific limitations of Claim 4. Accordingly, notwithstanding that Claim 4 is allowable as depending from an allowable base claim, Claim 4 is not obvious for the reasons cited above for Claim 3. Accordingly, Applicants respectfully request that the Examiner withdraw his rejection of Claim 4.

Claim 5

With respect to Claim 5, the Examiner states, "Regarding Claims 4-6, 12-14, it would have been obvious to the skilled artisan to employ three transmitting antennas and/or two receiver antennas, and notice of such use is hereby taken." The Examiner has not addressed the specific limitations included in Claim 5, namely, "each of said first magnetic field component, said second magnetic field component, and said third magnetic field component is continuously transmitted using a single carrier frequency."

Stewart does not teach or disclose three transmitting antennas, nor does Stewart teach three magnetic field components "continuously transmitted using a single carrier frequency." Neither does the Examiner make any statement regarding the specific limitations of Claim 5. Accordingly, notwithstanding that Claim 5 is allowable as depending from an allowable base claim, Claim 5 is not obvious for the reasons cited above for Claim 3. Accordingly, Applicants respectfully request that the Examiner withdraw his rejection of Claim 5.

Claim 6

With respect to Claim 6, the Examiner states, "Regarding Claims 4-6, 12-14, it would have been obvious to the skilled artisan to employ three transmitting antennas and/or two receiver antennas, and notice of such use is hereby taken." The Examiner has not addressed the specific limitations included in Claim 6, namely, "said single

carrier frequency is uniquely modulated for each of said first magnetic field component, said second magnetic field component, and said third magnetic field component."

Not only does Stewart not teach or disclose three transmitting antennas, Stewart does not teach or disclose unique modulation of each transmitting antenna. Neither does the Examiner make any statement regarding the limitations of Claim 6. Stewart discloses, "The base station **21** illustratively includes rotating magnetic field generating circuitry **35** on the circuit board **31**. This circuitry **35** may include a driver **41** for driving the wire coils **32**, **33** at a desired power level and frequency." Stewart, Col. 3, lines 62-65. Stewart also states "The rotating magnetic field generator, illustratively provided by the coils **32**, **33** and associated generating circuitry **35**, generates a rotating magnetic field radiating outwardly to define the proximate area **23** which extends to the perimeter **24**." Col. 4, lines 7-11. Further, Stewart states, "The base station **21**' may include a spread spectrum modulator **70** and the tag **25**' may include a spread spectrum demodulator **71**." Col. 6, lines 5-8. These statements do not indicate that Stewart teaches or discloses uniquely modulating each transmitting antenna. Neither does Stewart, in his discussion of the receiving tag **25**, teach or disclose receiving a transmitted signal that includes uniquely modulated magnetic field components.

Accordingly, notwithstanding that Claim 6 is allowable as depending from an allowable base claim, Claim 6 is not obvious for the reasons cited above for Claim 3. Accordingly, Applicants respectfully request that the Examiner withdraw his rejection of Claim 6.

Claims 7 and 28

With respect to Claims 7 and 28, the Examiner states, "As to Claims 7 and 28, the line frequency multiple defining the carrier frequency is an obvious method used in transmitters." Claim 7 includes the limitation that "said single carrier frequency is a programmable integral multiple of a power supply line frequency." Claim 28 includes the limitation that the receiver module includes "a digital signal processor for extracting components of said magnetic field and rejecting interference induced from said power supply line frequency."

The Examiner's bald assertion that Claims 7 and 28 are obvious because using the line frequency for "defining the carrier frequency is an obvious method used in transmitters" ignores the teaching of MPEP 2141.02, which states that the claimed invention as a whole must be considered. See MPEP 2141.02, page 2100-120 ("In determining the differences between the prior art and the claims, the question under 35 U.S.C.103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious.") Stewart does not teach or suggest the use of multiples of the line frequency to define the carrier frequency in proximity monitoring systems having the limitations of Claim 7 and the claims it depends from and the limitations of Claim 28. Absent such teaching or suggestion in the art of proximity monitoring systems, the first element in establishing a *prima facie* case of obviousness, that "there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings" has not been satisfied.

Filed herewith is a 37 C.F.R. § 1.132 Declaration of James Rochelle, an expert in the field of proximity monitoring and wireless containment systems. The facts set forth in the declaration establish the following:

1. Carrier frequencies that are multiples of the power line frequency are very susceptible to interference from power line interference.
2. In the field of wireless containment and proximity monitoring systems, using multiples of line frequency to determine an operating frequency is not obvious because the power line interference cannot be readily discriminated from the transmitted signal, thereby making it difficult to determine distance from the transmitter.
3. By using very specific modulation and demodulation techniques, it is possible to discriminate and reject interference induced from the power lines.
4. Such modulation and demodulation techniques were not known with respect to wireless containment and proximity monitoring systems before the filing date of the Application.

Accordingly, using multiples of the power line frequency to define the carrier frequency was not obvious to one skilled in the art of wireless containment and proximity monitoring systems at the time of filing of the Application

Notwithstanding that Claim 7 is allowable as depending from an allowable base claim, Claims 7 and 28 are not obvious because the Examiner has not established a *prima facie* case of obviousness because, first, there is no suggestion or motivation to modify the device of Stewart as suggested by the Examiner, which is the first requirement of a *prima facie* case of obviousness; second, Stewart does not disclose all the limitations of the subject claims, which is the third requirement of a *prima facie* case of obviousness. Further, Applicants have submitted evidence that using multiples of the power line frequency to define the carrier frequency was not obvious to one of ordinary skill in the art of proximity monitoring systems at the time the Application was filed. Accordingly, Applicants respectfully request that the Examiner withdraw his rejections of Claim 7 and 28.

Claims 8 and 16 to 22

With respect to Claims 8 and 16 to 21, the Examiner states, "As to Claims 8, 15-23, the oscillator and PLL and amplifiers, etc., are all obvious transmitter components in the Stewart et al system, and would therefore be obvious to employ therein, by the skilled artisan." As noted above with respect to Claim 7, the Examiner's statement that it is obvious to use known components ignores that the claimed invention as a whole must be considered. MPEP 2141.02, page 2100-120.

Claim 8 includes the limitation to use "a crystal oscillator using a phase locked loop." Claims 16 to 21 include limitations relating to "an I and Q baseband converter" and to "an I and Q baseband amplifier." Stewart does not teach, disclose, or suggest the use of such components in the receiver tag **25**. Stewart does not suggest, teach, or disclose such elements. Also, Claim 22 depends upon Claim 21 and adds the limitation that "said receiver module is carried by a pet, said receiver module further comprising a stimulus delivery system for applying a deterrent stimulus to the pet when the pet approaches said boundary."

Filed herewith is a 37 C.F.R. § 1.132 Declaration of James Rochelle, an expert in the field of proximity monitoring and wireless containment systems. The facts set forth in the declaration establish the following:

1. Stewart does not teach, disclose, or suggest the use of such components in the receiver tag 25.

2. It was not known in the field of proximity monitoring systems, at the time of filing of the Application Serial Number 09/779,076, to use "a crystal oscillator using a phase locked loop" in a receiver.

3. "A crystal oscillator using a phase locked loop" in the receiver solves the problem of matching the mobile receiver's oscillator frequency to the nominal carrier frequency.

4. It was not known in the field of proximity monitoring systems, at the time of filing of the Application Serial Number 09/779,076, to use "an I and Q baseband converter" and "an I and Q baseband amplifier" in a receiver.

5. "An I and Q baseband converter" and "an I and Q baseband amplifier" solves the problem of mismatches between the carrier frequency and the receiver's crystal frequency.

Accordingly, using the structures included in the limitations of the claims was not obvious to one skilled in the art at the time of filing of the Application.

Notwithstanding that Claims 8 and 16 to 22 are allowable as depending from an allowable base claim, Claims 8 and 16 to 21 are not obvious because the Examiner has not established a *prima facie* case of obviousness by showing some suggestion or motivation to modify the device of Stewart, which is the first requirement of a *prima facie* case of obviousness. The Examiner has not established a *prima facie* case of obviousness by showing that the references teach or disclose all the limitations of the claim, which is the third requirement of a *prima facie* case of obviousness. Further, Applicants have submitted evidence that the components were not obvious to one of ordinary skill in the art of proximity monitoring systems at the time the Application was filed. Applicants respectfully submit that Claim 22 is also allowable as depending

from Claim 21, which Applicants consider as an allowable claim. Accordingly, Applicants respectfully request that the Examiner withdraw his rejection of Claims 8 and 16 to 22.

Claims 9 to 11

With respect to Claims 9 to 11, the Examiner states, "As to Claims 9-11, the particular modulation technique is also obvious to the skilled artisan." Claim 9 includes the limitation that "said single carrier signal is modulated using a binary phase shift keying waveform." Claim 10 depends from Claim 9 and includes the limitation that "a coherent said binary phase shift keying waveform is modulated using a waveform produced by integral ratio frequency division of a transmitter system clock." Claim 11 depends from Claim 9 and includes the limitation that "said binary phase shift keying waveform is selected to produce a high degree of rejection of interference at a power line frequency and any significant harmonics of the power line frequency and to allow accurate decomposition of said composite magnetic field into said first magnetic field component, said second magnetic field component, and said third magnetic field component." Stewart does not teach or suggest these limitations.

Filed herewith is a 37 C.F.R. § 1.132 Declaration of James Rochelle, an expert in the field of proximity monitoring and wireless containment systems. The facts set forth in the declaration establish that those familiar with spread spectrum and binary phase shift keying recognize that spread spectrum is not at all similar to binary phase shift keying and that the use of binary phase shift keying was not obvious to one of ordinary skill in the art of proximity monitoring systems at the time the Application was filed. Stewart does not suggest, teach, or disclose binary phase shift keying.

Accordingly, notwithstanding that Claims 9 to 11 are allowable as depending from an allowable base claim, Claims 9 to 11 are not obvious because the Examiner has not established a *prima facie* case of obviousness by showing some suggestion or motivation to modify the device of Stewart, which is the first requirement of a *prima facie* case of obviousness, or by showing that the references teach or disclose all the limitations of the claims, which is the third requirement of a *prima facie* case of obviousness. Further, Applicants have submitted evidence that the modulation disclosed by Stewart is not at all similar to binary phase shift keying and that such use was not obvious to one of ordinary skill in the art of proximity monitoring systems

at the time the Application was filed. Accordingly, Applicants respectfully request that the Examiner withdraw his rejection of Claims 9 to 11.

Claims 12 and 13

With respect to Claims 12 and 13, the Examiner states, "Regarding Claims 4-6, 12-14, it would have been obvious to the skilled artisan to employ three transmitting antennas and/or two receiver antennas, and notice of such use is hereby taken." The Examiner has not addressed the specific limitations included in Claim 12, namely, "said first transmitter antenna, said second transmitter antenna, and said transmitter third antenna are constructed using antenna coils having substantially similar dimensions." The Examiner has not addressed the specific limitations included in Claim 13, namely, "one of said first transmitter antenna, said second transmitter antenna, and said transmitter third antenna is constructed from a pair of said antenna coils."

Accordingly, notwithstanding that Claims 12 and 13 are allowable as depending from an allowable base claim, Claims 12 and 13 are not obvious for the reasons cited above for Claim 3. Accordingly, Applicants respectfully request that the Examiner withdraw his rejection of Claims 12 and 13.

Claim 14 (Re-presented as Claim 30)

With respect to Claim 14, the Examiner states, "Regarding Claims 4-6, 12-14, it would have been obvious to the skilled artisan to employ three transmitting antennas and/or two receiver antennas, and notice of such use is hereby taken."

Applicants have re-presented Claim 14 in independent form as Claim 30 by including the limitations of Claim 1, from which Claim 14 originally depended. Claim 30 adds the limitations of Claim 14 to those of Claim 1 that "said receiver antenna array includes a two-axis, single output magnetic field sensing antenna producing a single magnetic field transduction signal output."

Filed herewith is a 37 C.F.R. § 1.132 Declaration of James Rochelle, an expert in the field of proximity monitoring and wireless containment systems. The facts set forth in the declaration establish the following:

1. Stewart does not teach, disclose, or hint at the use of two receiving antennas.
2. Stewart discloses that three receiving antennas are necessary to provide reception regardless of orientation and that, accordingly, Stewart teaches away from using only two receiving antennas.
3. Stewart does not provide details regarding the connection of the receiving antennas.
4. It was not known in the field of proximity monitoring systems, at the time of filing of the Application Serial Number 09/779,076, how to construct an antenna array with only two antenna coils that was truly omni-directional.

Accordingly, connecting two antennas to a receiver was not obvious to one skilled in the art at the time of filing of the Application. However, by his statement that "notice of such use is hereby taken," the Examiner is taking official notice as described under MPEP 2144.03. However, contrary to the MPEP, the Examiner has not cited a prior art reference in support of his assertion. MPEP 2144.03, pg. 2100-132 ("It would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known. . . . It is never appropriate to rely solely on "common knowledge " in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based.")

Applicants respectfully submit that Claim 30 is not obvious in view of Stewart because, first, there is no suggestion or motivation to modify the device of Stewart as suggested by the Examiner, which is the first requirement of a *prima facie* case of obviousness; second, Stewart does not disclose all the limitations of Claim 30, which is the third requirement of a *prima facie* case of obviousness; third, Applicants have submitted evidence that the use of two receiving antennas is not obvious; and fourth, the Examiner has not met his burden of supporting his official notice of obviousness as described by MPEP 2144.03. Accordingly, Applicants respectfully submit that Claim 30 is allowable.

Claim 23

With respect to Claim 23, the Examiner states, "As to Claims 8, 15-23, the oscillator and PLL and amplifiers, etc., are all obvious transmitter components in the Stewart et al system, and would therefore be obvious to employ therein, by the skilled artisan. As noted above with respect to Claim 7, the Examiner's statement that it is obvious to use known components ignores that the claimed invention as a whole must be considered. MPEP 2141.02, page 2100-120.

Claim 23 depends from Claim 16 and includes the limitation that "said receiver includes detection logic to detect an unusually rapid decrease in said total power of said magnetic field incident at said antenna array thereby indicating a loss of power to said transmitter."

Stewart states, "The alert circuit **36** of the base station **21** may generate an alert indication based upon failure to continue to receive the series of signals from the transmitter **62**. In other words, the alert circuit **36** provides a time out feature if the signal from the transmitter **62** is no longer being received. Accordingly, if the transmitter **62** otherwise fails or stops transmitting because the tag **25** is outside the defined perimeter **24**, an alert indication may be given to the user or third party as described above. In slightly different terms, in this embodiment an acknowledgment function is provided where if the magnetic field is detected, a signal is transmitted to acknowledge the detection." Stewart, Col. 5, lines 42-54. This function disclosed by Stewart is not the same, or even similar to, the function of detecting "a loss of power to said transmitter." Stewart does not suggest, teach, or disclose such a function as described in the claim.

Applicants respectfully submit that Claim 23 is not obvious in view of Stewart because, first, there is no suggestion or motivation to modify the device of Stewart as suggested by the Examiner, which is the first requirement of a *prima facie* case of obviousness; second, Stewart does not disclose all the limitations of Claim 23, which is the third requirement of a *prima facie* case of obviousness. Accordingly, Applicants respectfully submit that Claim 23 is allowable.

Information Disclosure Statement

Filed herewith is a supplemental Information Disclosure Statement identifying patents illustrating the state of the art prior to the filing date of the present Application. The listed patents are distinguishable from the subject matter claimed in the Application. As required by 37 C.F.R. § 1.97(c), the following subsection (e) statement is provided:

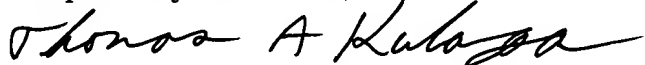
No item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification (this Response) after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in § 1.56(c) more than three months prior to the filing of the information disclosure statement.

Conclusion

In view of the cancellation of Claims 1, 2, 3, 14 and 15, without prejudice, the amendment of Claims 4, 12, 13, and 16, and the addition of Claims 29 and 30, which are re-presented claims that were formerly Claims 3 and 14, respectively, it is believed that the above-identified patent application is in a condition for the issuance of a Notice of Allowance. Such action by the Examiner is respectfully requested. If, however, the Examiner is of the opinion that any of the drawings or other portions of the application are still not allowable, it will be appreciated if the Examiner will telephone the undersigned to expedite the prosecution of the application.

Please charge any additional fees associated with this communication, or credit any overpayment, to Deposit Account No. 16-1910 (26053.00).

Respectfully submitted,



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